



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

MAR 03 2009

REPLY TO THE ATTENTION OF:  
LU-9J

CERTIFIED MAIL: 7001 0320 0006 1453 9926  
RETURN RECEIPT REQUESTED

John Perkins, CHMM  
Director, Environment, Health and Safety  
Tyco Safety Products  
6600 Congress Avenue  
Boca Raton, Florida 33487

RE: RCRA 3008(h) Consent Order  
Ansul, Incorporated  
Marinette, Wisconsin  
WID 006 125 215  
U.S. EPA Docket Number: **RCRA-05-2009-0007**

Dear Mr. Perkins:

Enclosed is the signed Administrative Order on Consent (Consent Order) proceeding under the authority of Section 3008(h) of the Resource Conservation and Recovery Act. In accordance with Section V of the Consent Order, I am designating Gary Cygan as the U.S. EPA Project Manager for this project.

The U.S. EPA understands and acknowledges the substantial Corrective Action work that lay ahead. We want to reassure you that we will continue to be cooperative in resolving any issues that may arise during the course of your construction activities.

Sincerely,

Jose G. Cisneros  
Chief  
Reuse and Remediation Branch

Enclosure

cc: Kristin DuFresne  
Wisconsin Department of Natural Resources



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5

RECEIVED  
MAR - 3 2009  
REGIONAL HEARING CLERK  
ENVIRONMENTAL  
PROTECTION AGENCY

In the Matter of: ) ADMINISTRATIVE ORDER ON CONSENT  
)  
) U.S. EPA Docket No.: RCRA-05-2009-0007  
)  
Ansul Incorporated )  
Stanton Street Facility )  
Marinette, Wisconsin )  
) Proceeding under Section 3008(h) of the  
) Resource Conservation and Recovery Act,  
) as amended, 42 U.S.C. § 6928(h).  
EPA ID#WID 006 125 215 )  
)  
Respondent. )

I. JURISDICTION

1. The Administrator of the United States Environmental Protection Agency (U.S. EPA) is issuing this Administrative Order on Consent (Order) to Ansul Incorporated, One Stanton Street, Marinette, Wisconsin, (Ansul) under Section 3008(h) of the Solid Waste Disposal Act, commonly referred to as the Resource Conservation and Recovery Act of 1976 (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984, 42 U.S.C. § 6928(h). The Administrator has delegated the authority to issue orders under Section 3008(h) of RCRA to the Director of the Land and Chemicals Division, U.S. EPA, Region 5.

2. Ansul is the owner/operator of the One Stanton Street Facility, Marinette, Wisconsin, (the Facility). The Facility is located within the city of Marinette, Marinette County, Wisconsin, on the southern side of the Menominee River. The Facility is bordered to the west-northwest by the Marinette Marine Facility, to the east by Marinette City property, to the south by railroad tracks and to the north, by the Menominee River, the midpoint of which represents the local political boundary between Wisconsin and the Upper Peninsula of Michigan. Residential areas are located in the vicinity of the site, the largest and closest of which is to the south of the Facility. This neighborhood lies within Marinette and is located approximately 300 feet southeast of the Facility. The Facility began operations in 1915. The Facility was first used for lumber mill operations. The current owner, Ansul, (or its predecessor companies), manufactured cattle feed, refrigerants, and specialty chemicals. The Facility manufactured arsenic-based agricultural herbicides from 1957 to 1977. By 1978, Ansul ceased production of arsenic-based herbicides, and since 1983, the Facility only produces fire extinguishers and fire suppression chemicals.

3. Ansul agrees not to contest U.S. EPA's jurisdiction to issue this Order, to enforce its terms, or to impose sanctions for violations of the Order. Ansul waives any right to request a hearing on this matter pursuant to Section 3008(b) of RCRA, 42 U.S.C. § 6928(b), and 40 C.F.R. Part 24, and consents to the issuance of this Order without a hearing under Section 3008(b) of RCRA as a Consent Order issued pursuant to Section 3008(h) of RCRA.

## II. DEFINITIONS

4. This Order incorporates the definitions in RCRA, 42 U.S.C. §§ 6901 - 6922k, and the regulations promulgated under RCRA unless otherwise specified.

## III. PARTIES BOUND

5. This Order applies to and binds U.S. EPA, Ansul, and its agents, successors, assigns, trustees, receivers, and all persons, including but not limited to contractors and consultants, acting on behalf of Ansul. Ansul shall be responsible for and liable for any violations of this Order, regardless of its use of employees, agents, contractors, or consultants to perform work required by this Order.

6. No change in ownership or corporate or partnership status relating to the Facility shall alter the obligations of Ansul under this Order. Any conveyance of title, easement, or other interest in the Facility, or a portion of the Facility, shall not affect Ansul's obligations under this Order. Ansul shall give written notice of this Order to any successor in interest prior to transferring ownership or operation of the Facility or a portion thereof and shall notify U.S. EPA in writing within five days of the transfer. This written notice shall describe how Ansul has assured that, despite the transfer, all institutional controls required now or in the future for the Facility will be implemented and maintained. This paragraph will not apply if U.S. EPA and Ansul agree that this Order has terminated as to the Facility or any relevant portion of the Facility.

## IV. DETERMINATIONS

7. After consideration of the Administrative Record, the Director of the Land and Chemicals Division, U.S. EPA Region 5, has made the following conclusions of law and determinations:

- a. Ansul is a "person" within the meaning of Section 1004(15) of RCRA, 42 U.S.C. § 6903(15).
- b. Ansul is the owner or operator of a Facility that has operated in the past under interim status subject to Section 3005(e) of RCRA, 42 U.S.C. § 6925(e).
- c. Certain wastes and constituents found at the Facility are hazardous wastes and/or hazardous constituents pursuant to Sections 1004(5) and 3001 of RCRA, 42 U.S.C. §§ 6903(5) and 6921, and 40 C.F.R. Part 261.
- d. There is or has been a release of hazardous wastes or hazardous constituents into the environment from the Facility.
- e. The actions required by this Order are necessary to protect human health or the environment.

## V. PROJECT MANAGER

8. U.S. EPA and Ansul must each designate a Project Manager and notify each other in writing of the Project Manager selected within 14 days of the effective date of this Order. Each Project Manager will be responsible for overseeing the implementation of this Project. The parties must provide prompt written notice whenever they change Project Managers.

## VI. WORK TO BE PERFORMED

9. Pursuant to Section 3008(h) of RCRA, Ansul agrees to and is hereby ordered to perform the actions specified in this section, in the manner and by the dates specified herein. Ansul represents that it has the technical and financial ability to carry out corrective action at the Facility. Ansul must perform the work undertaken pursuant to this Order and its attachments (which are incorporated by reference into this Order), RCRA and other applicable federal and state laws and their implementing regulations, and consistent with all relevant U.S. EPA guidance documents as appropriate to the Facility. These guidance documents include, but are not limited to, the Chapter 4: "Monitored Natural Recovery of Contaminated Sediment Remediation Guidance for Hazardous Waste Sites (U.S. EPA, 2005)," "Phytoremediation of Contaminated Soil and Groundwater at Hazardous Waste Sites," "Use of Institutional Controls in the RCRA Corrective Action Program," U.S. EPA's risk assessment guidance and "Statistical Methods for Evaluating the Attainment of Cleanup Standards, Vol. 1 and Vol. 2 for Soils and Solid Median and Groundwater."

10. Ansul must implement the remedy selected in U.S. EPA's Statement of Basis and Final Decision document for Ansul Fire and Safety, Inc., Marinette, Wisconsin, U.S.EPA, 2008 (Final Decision Document), as amended by this Order and the attached Scope of Work. The Final Decision Document is attached to this Order as Attachment 1 and is hereby incorporated by reference. This remedy was selected to: 1) be protective of human health and the environment; 2) control sources of contamination at the Facility; and 3) comply with all applicable clean-up standards. Ansul shall submit the following plans and reports in accordance with Attachment 2, Scope of Work, which is incorporated by reference into this Order:

- Program Management Plan
- Community Relations Plan
- Design Plans and Specifications
- Operation and Maintenance Plans
- Project Schedule
- Health and Safety Plan
- Construction Quality Assurance Program Plan
- Confirmation and Long-Term Monitoring Sampling Plans
- Project Completion Reports

11. Components of the selected remedy include:

a. **Institutional Controls.** Within one year of the effective date of this Order Ansul shall record an enforceable deed restriction for the Facility. Ansul shall file the deed restriction in the appropriate State or County recorder's office. The deed restriction, at a minimum, shall ensure that: a) the Ansul property use remains industrial; b) any cover installed on the Ansul property is not disturbed, is inspected and is maintained; c) that groundwater levels are maintained at depths below ground surface that prevent flooding the facility; d) the ground water barrier system wall is not disturbed and is inspected and maintained; and e) includes the restrictions contained in paragraphs 14-18 below. Ansul shall ensure that the deed restriction identifies the areas on-site where there is arsenic contamination or construction of barriers. See Figures 1 and 2. Ansul shall provide U.S. EPA with final title evidence and a certified copy of the original recorded deed restriction showing the appropriate officials recording stamp within one year of the effective date of this Order. This land use restriction shall become Attachment 3. Attachment 3 shall be incorporated into this Order when final, and shall be binding on Ansul.

Within one year of the effective date of this Order, Ansul shall complete institutional controls for the Menominee River sediment areas at or above 50 ppm arsenic (Figure 3). The institutional controls may consist of, but are not limited to, governmental controls such as ordinances and/or permits. The institutional controls shall not allow anchoring, digging, dredging or trenching in the contaminated river sediments area. The institutional controls shall be in effect from one year after the effective date of this Order until monitored natural recovery (MNR) is completed. Ansul shall submit to U.S. EPA within one year of the effective date of this Order a copy of the institutional controls it has implemented, a schedule for implementation of the remaining institutional controls and documentation of its best efforts to comply with this requirement.

b. **On-site Groundwater Management** (Containment Barrier, on-site groundwater collection and treatment system, Containment Barrier Monitoring ) As part of the on-site groundwater containment strategy Ansul shall construct and maintain a below-ground barrier wall to contain on-site groundwater contaminated with arsenic, to the maximum extent practicable. It will also construct and operate on-site groundwater collection and treatment systems consisting of a phyto-pumping system and a mechanical pumping system. The on-site groundwater collection and treatment systems will be operated such that the ground water is maintained on-site at depths below ground surface that prevents surface flooding of the facility.

The barrier wall will be constructed of impermeable materials and generally will follow the site perimeter including an additional portion of the wetlands to the east (see Figure 2). The containment barrier will be driven into either the competent glacial till layer existing on top of the limestone bedrock or to the top of the bedrock itself if no substantial till (clay) layer exists. Ansul will maintain the barrier wall system in

accordance with an approved operation and maintenance plan. Ansul will complete construction of the barrier wall by November 1, 2010.

The on-site mechanical pumping system consisting of a shallow groundwater collection and treatment system (i.e., reverse osmosis) will be operational by November 1, 2010. The collected ground water and any residuals from its treatment will be handled in accordance with applicable laws and permits.

Ansul will submit to U.S. EPA a Containment Barrier Monitoring and Sampling Plan that will measure the effectiveness of the barrier wall and the on-site groundwater systems in containing contaminated groundwater. Ansul will submit this plan to U.S. EPA for review and approval and in accordance with Attachment 2. Ansul will submit the other plans and reports required for this component of the remedy in accordance with Attachment 2. In addition to the plans and reports required by Attachment 2 Ansul shall submit a copy to U.S. EPA of a Final Remedy Construction Completion Report for the containment barrier and the on-site groundwater collection and treatment system by May 1, 2011.

Where possible on-site, Ansul will implement and maintain a phyto-pumping system by planting trees cultivated for high rates of evapotranspiration to augment the shallow groundwater mechanical pumping system. The extent of acreage planted with trees will be dependent upon further field testing and groundwater modeling. If tree planting is not implemented, or is determined to be unsuccessful in controlling groundwater levels on-site, Ansul will provide an alternate mechanical pumping system, or other technology to control groundwater levels on site.

Ansul must have phyto-pumping work completed and trees planted by completion of the Containment Barrier construction, November 1, 2010. Ansul will submit the plans and reports required for this component of the remedy in accordance with Attachment 2. In addition to the plans and reports required by Attachment 2 Ansul will provide U.S. EPA with a copy of a Final Remedy Construction Completion Report for this component of the remedy by May 1, 2011.

c. **Soil Remediation.** Ansul will cap on-site surface soils at locations equal to or exceeding 32 parts per million (ppm) arsenic and remediate surface soils at arsenic concentrations equal to or greater than 16 ppm located at an area off site near the railroad (See Figure 2). The on-site cap shall be designed and maintained in order to prevent human and ecological exposure to soil with an arsenic concentration of greater than or equal to 32 ppm. Ansul will perform an annual inspection and repair of the caps per an approved operation and maintenance plan. Figure 1 shows the areas on site where it is anticipated cap(s) will be installed. If necessary, Ansul will regrade and backfill areas where soils are removed off site.

The On-Site and Off-Site soil remediation work must be completed by December 31, 2009. Ansul will submit the plans and reports required for this component of the remedy in accordance with Attachment 2. In addition to the plans and reports required by Attachment 2, Ansul will provide U.S. EPA with a copy of Final Remedy Construction Completion Report for this component of the remedy by March 30, 2010.

d. **Menominee River Sediment Removal.** Ansul will remove Menominee River sediments in areas where arsenic concentrations are equal to or greater than 50 ppm (see Figure 3) and dispose of sediments appropriately off site. Ansul must submit to U.S. EPA a River Sediment Removal Work Plan by December 1, 2010. The River Sediment Removal Work Plan will provide the details on how Respondent will achieve the 50 ppm target and will include the results of any further characterization work which Respondent may conduct. Sediment removal activities will be conducted in accordance with all applicable laws and so as to minimize re-suspension of contaminants.

Ansul will remove from the river all soft sediments and semi-consolidated sands and silts which contain arsenic concentrations greater than or equal to 50 ppm of arsenic. Soft sediments are those sediments that overlay the more consolidated subsoils (i.e., semi-consolidated silts, lacustrine clays, glacial till and bedrock). The depth of the removal will not exceed the top of the glacial till layer. Ansul may propose an alternative to removal of the layer between the soft sediments and the glacial till pursuant to paragraph "f" below.

Ansul must complete this component of the remedy within 3 years of the completion of construction of the containment barrier - by November 1, 2013. This date will be extended if Ansul demonstrates, and U.S. EPA approves, prior to initiation of removal activities that the containment barrier wall has not been effective in controlling transport of arsenic-impacted groundwater from the upland portion of the site to the river. Ansul will submit the plans and reports required for this component of the remedy in accordance with Attachment 2. In addition to the plans and reports required by Attachment 2, Ansul will provide U.S. EPA with a copy a of the Final Remedy Construction Completion Report for the River Sediment Removal by March 1, 2014.

e. **Monitored Natural Recovery** Ansul will use MNR to remediate sediments remaining after sediment removal activities to a concentration of 20 ppm of arsenic. If Ansul does not meet the 20 ppm arsenic concentration within 10 years of completion of the sediment removal then Ansul will submit to EPA for review and approval a plan for meeting the 20 ppm arsenic concentration or that will achieve an equivalent level of protection to that of MNR (i.e., sediment concentration of arsenic of 20 ppm) within 2 years of EPA's approval of the plan ("MNR Alternative Plan") or such other time period allowed by EPA. Ansul will submit the MNR Alternative Plan in accordance with the schedule developed in item 3 below and not later than November 1, 2023. Ansul will implement the EPA approved or modified MNR Alternative Plan.



Ansul will prepare and submit to U.S. EPA for review and approval by November 1, 2012 a MNR Plan designed to demonstrate that during the MNR period, natural recovery is successfully occurring. The MNR Plan must also predict when arsenic levels will reach the target clean-up concentration of 20 ppm. The predicted rate of natural recovery will be evaluated during the 10 year MNR period and compared to the actual rate of recovery. Ansul will submit to EPA for review and approval a modification to the MNR plan if during the MNR period EPA determines that the rate of natural recovery is unacceptable. The modification to the MNR plan must identify contingent measures (e.g., additional removal) to achieve the 20ppm arsenic concentration or an equivalent level of protection to that of MNR within the time period allowed by EPA.

The MNR Plan shall address, at a minimum, the following:

- 1) a comprehensive monitoring program capable of annually assessing the ability of MNR to achieve 20 ppm by November 1, 2023 (i.e., within 10 years after completion of the removal action required by this Order) and to ensure the long-term integrity of the remedy and protection of human health and the environment;
- 2) long-term-monitoring during the MNR period until remediation objectives have been achieved; and
- 3) a schedule for implementing a contingent remedy ("MNR Alternative Plan") in the event that the long-term monitoring program indicates that either the sediment arsenic values exceed 50 ppm, or the clean-up target of 20 ppm arsenic will not be achieved by November 1, 2023.

Monitoring data collected during the MNR period may consist of, but is not limited to:

1. Contaminant concentration locations exhibiting significant upward trends not originally predicted during remedy selection.
2. Contaminant concentration locations not decreasing at a sufficiently rapid rate to meet the remediation objectives timeframe.
3. Statistical approaches used, if any, to determine residual arsenic concentrations in sediment.

Ansul will submit the plans and reports required for this component of the remedy in accordance with Attachment 2. In addition to the plans and reports required by Attachment 2, Ansul will provide U.S. EPA with a copy of a Final Remedy

Construction Completion Report which must be submitted to U.S. EPA within 90 days after Menominee River sediments achieve the 20 ppm cleanup target.

f. **Alternative Menominee River Sediment Removal Plan.** Ansul may propose an alternative to removal of the sediment layer, should any exist, between the soft sediments and glacial till as required in paragraph “d” above (“Alternative River Sediment Plan”) provided that: i) such alternative is presented to U.S. EPA for review and approval by no later than the time when it submits the River Sediment Removal Work Plan – December 1, 2010; ii) Ansul demonstrates that removal beneath the soft sediments is economically and technologically impractical; and iii) Ansul demonstrates that its alternative protects human health and the environment; is legally implementable; and achieves an equivalent level of protection to that of MNR (i.e., sediment concentration of arsenic of 20 ppm by November 1, 2023). If approved, Ansul’s Alternative River Sediment Plan will become an enforceable element of this Order and will replace the applicable provisions of paragraphs “d” and “e” above.

g. **5 year Technical Review** Ansul shall undertake a technical review every 5 years of the state of the remedy being implemented pursuant to this Order. The ground water component of this technical review shall examine advances in treating high contamination levels of arsenic in groundwater. A Five Year Technological Review Report will be submitted to the U.S. EPA by December 31, 2013 and every 5 years, thereafter. The ground water component of the Technological Review Report shall address: 1) the appropriateness of continuing the operation and maintenance of the groundwater component of the remedy, revising this component or constructing a demonstration project at the Facility using newly available advances in remediation science; 2) a discussion of how the existing groundwater containment and treatment systems are performing; 3) a discussion of any proposed modifications to the existing remedy and a schedule for their implementation; 4) a discussion of the current scientific and engineering knowledge useful to protect human health and the environment at the site; and 5) results of a literature search on arsenic treatment technologies and assessment of the new technology’s potential for application to arsenic contamination at Ansul. If environmental technology advances to a point where treating the more highly concentrated arsenic groundwater becomes practicable, Ansul will provide to U.S. EPA for review and approval modifications in the existing system needed to implement the new technology.

h. **Site Security** Ansul shall maintain site access controls such as fencing, health and safety plans at the Facility and other measures, as necessary, to minimize unacceptable risk associated with human exposure to site contaminants.

12. If land or water use-restrictions in the form of state or local laws, regulations, ordinances or other governmental controls are needed to implement the remedy selected, ensure its integrity and protectiveness, or ensure non-interference with it, Ansul shall use best efforts to secure such governmental controls.

13. Notwithstanding any provision of this Order, U.S. EPA retains all of its access authorities and rights, as well as all of its rights to require land or water use-restrictions, including enforcement authorities related thereto, under the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), 42 U.S.C. §§ 9601-9675, RCRA, and any other applicable statute or regulation.

14. Ansul shall not allow groundwater at the Facility to be used for drinking, bathing, washing, or other residential purposes, or for livestock, farming, or irrigation for crops to be consumed. Ansul shall not allow the installation of any new water wells for drinking, bathing, washing, or other residential purposes, or for livestock, farming or irrigation for crops to be consumed on this property.

15. Ansul shall not allow any residential activities at the Facility for as long as soils and groundwater at the Facility remain contaminated above the residential soil and groundwater performance standards for human exposure.

16. The term "residential activities" shall include, but not be limited to, the following activities:

- a. Single and multi-family dwelling and rental units;
- b. Day care centers and preschools;
- c. Hotels and motels;
- d. Educational (except as a part of industrial activities at the Facility) and religious facilities;
- e. Restaurants and other food and beverage services (except as a part of industrial activities at the Facility);
- f. Entertainment and recreational facilities (except as a part of industrial activities at the Facility);
- g. Hospitals and other extended care medical facilities (except as a part of industrial activities at the Facility); and
- h. Transient or other residential facilities.

17. "Industrial use" shall be defined to include manufacturing, processing operations, and office and warehouse use including, but not limited to, production, storage, and sales of durable goods and other non-food chain products, and parking or driveway use.

18. Ansul shall not use the Facility in any manner that may unreasonably interfere with remedial action, operation and maintenance, monitoring, or other measures necessary to assure the effectiveness and integrity of the remedy to be implemented pursuant to this Order.

19. Prior to executing any instrument conveying any interest in any portion of the Facility, including but not limited to easements, deeds, leases and mortgages, Ansul must notify the

transferee of the existence of the use restriction in this Order and must provide a copy of the Order and attachments to the transferee.

20. U.S. EPA may request supplemental information from Ansul if U.S. EPA determines that the submitted work plans, and/or supporting information do not provide an adequate basis to implement and complete the selected remedy in a manner that will protect human health and the environment from the release of hazardous waste or hazardous constituents at or from the Facility. Ansul must timely provide any supplemental information that U.S. EPA requests in writing.

21. Reporting and other requirements:

- a. Ansul must continue to maintain a publicly accessible repository for information regarding site activities and conduct public outreach in accordance with Attachment 2.
- b. Ansul must provide quarterly progress reports to U.S. EPA. These reports shall be for the quarters of January to March, April to June, July to September, and October to December and will be due on the 15<sup>th</sup> day of the month following the ending of the quarter. The report must list work performed to date, data collected, problems encountered, and project schedule. U.S. EPA may allow a reduction in the reporting frequency if it determines that quarterly progress reports are no longer necessary.
- c. The parties will communicate frequently and in good faith to assure successful completion of the requirements of this Order, and will meet on at least a semi-annual basis during the active phases of site work (e.g., those phases identified in paragraphs 11(b)-(d) to discuss the work proposed and performed under this Order.
- d. For ongoing operation, maintenance, and monitoring of the selected remedy, Ansul must provide operations, maintenance, and monitoring plan(s) for the work required by paragraphs 11(b)-(e). Ansul must revise and resubmit the plans in response to U.S. EPA's written comments, if any, by the dates U.S. EPA specifies. Upon U.S. EPA's written approval, Ansul must implement the approved operation, maintenance, and monitoring plans according to the schedule and terms of the plans. Ansul will submit the plans and reports required by this Order and Attachment 2 in accordance with requirements of this Order and Attachment 2.
- e. Any risk assessments Ansul conducts must estimate human health and ecological risk under reasonable maximum exposure scenarios for both current and reasonably expected future land use scenarios. In conducting the risk assessments, Ansul must follow the Risk Assessment Guidance for Superfund (RAGS) or other appropriate U.S. EPA guidance. Ansul must use appropriate,

conservative screening values when screening to determine whether further investigation is required. Appropriate screening values include those derived from federal Maximum Contaminant Levels, U.S. EPA Regional Screening Levels, U.S. EPA Region 5 Ecological Screening Levels, U.S. EPA Ecological Soil Screening Levels, U.S. EPA Region 5 Risk Based Screening Levels, or RAGS.

- f. All sampling and analysis conducted under this Order must be performed in accordance with the Region 5 RCRA Quality Assurance Project Plan Policy (April 1998) as appropriate for the site, and be sufficient to identify and characterize the nature and extent of contamination or implementation of corrective measures as required by this Order. U.S. EPA may audit laboratories Ansul selects or require Ansul to purchase and have analyzed any performance evaluation samples selected by U.S. EPA of chemicals of concern. Ansul must notify U.S. EPA in writing at least 14 days before beginning any field work performed under this Order. At the request of U.S. EPA, Ansul must provide or allow U.S. EPA or its authorized representative to take split or duplicate samples of all samples Ansul collects under this Order.

22. Project Managers can agree in writing to extend, for 90 days or less, any deadline in this Section. However, extensions of greater than 90 days require obtaining approval from the Chief of the Remediation and Reuse Branch, Land and Chemical Division U.S. EPA, Region 5.

#### VII. COST ESTIMATES AND ASSURANCES OF FINANCIAL RESPONSIBILITY FOR COMPLETING THE WORK

23. Estimated Cost of the Work.

- a. Within ninety (90) days after the effective date of this Order, Ansul shall submit to U.S. EPA for approval detailed written estimates, in current dollars, of the estimated cost of all Work to Be Performed under Section VI of this Order (Cost Estimate). The Cost Estimate must account for the costs of all remaining long term care work in addition to all remaining construction work. The Cost Estimate for removal of Menomonee River sediments shall be estimated in the River Sediment Removal Work Plan identified in Section VI, paragraph 11.d.
- b. Ansul shall annually adjust the Cost Estimate for inflation and for changes in the scope of the Work to be performed, within sixty (60) days prior to the anniversary date of the establishment of the financial assurance instrument(s), until the Work required by this Order is completed. Ansul shall submit each annual Cost Estimate to U.S. EPA for review and approval. Once the active phases of site work have been completed Ansul may provide Cost Estimates less frequently with prior U.S. EPA approval.

24. Assurances of Financial Responsibility for Completing the Work

- a. Within forty-five (45) days after submittal of the initial Cost Estimate (the "Financial Assurance Due Date") and annually thereafter, Ansul shall establish and maintain financial assurance for the benefit of the U.S. EPA in the amount of the most recent approved Cost Estimate, even if U.S. EPA has not yet approved the annual updated Cost Estimate. Ansul may use one or more of the financial assurance forms described in subparagraphs (i) – (vi) below. Any and all financial assurance instruments provided pursuant to this Order shall be submitted to U.S. EPA for review in draft form at least thirty (30) days before they are due to be filed and shall be satisfactory in form and substance as determined by U.S. EPA.
  - i. A trust fund established for the benefit of U.S. EPA, administered by a trustee;
  - ii. A surety bond unconditionally guaranteeing performance of the Work in accordance with this Order, or guaranteeing payment at the direction of U.S. EPA into a standby trust fund that meets the requirements of the trust fund in subparagraph (i) above;
  - iii. An irrevocable letter of credit, payable at the direction of the Regional Administrator, or his delegatee, into a standby trust fund that meets the requirements of the trust fund in subparagraph (i) above;
  - iv. An insurance policy that provides U.S. EPA with rights as a beneficiary, issued for a face amount at least equal to the current Cost Estimate, except where costs not covered by the insurance policy are covered by another financial assurance instrument;
  - v. A corporate guarantee, executed in favor of the U.S. EPA by one or more of the following: (1) a direct or indirect parent company, or (2) a company that has a "substantial business relationship" with Ansul (as defined in 40 C.F.R. § 264.141(h)), to perform the Work to Be Performed under Section VI of this Order or to establish a trust fund as permitted by subparagraph (i) above; provided, however, that any company providing such a guarantee shall demonstrate to the satisfaction of the U.S. EPA that it satisfies the financial test requirements of 40 C.F.R. § 264.143(f) with respect to the portion of the Cost Estimate that it proposes to guarantee; or

- vi. A demonstration by Ansul that it meets the financial test criteria of 40 C.F.R. § 264.143(f) with respect to the Cost Estimate, provided that all other requirements of 40 C.F.R. § 264.143(f) are satisfied. To the extent Ansul intends to provide financial assurance through this mechanism, it must provide all documentation required under 40 C.F.R. § 264.143(f) prior to the Financial Assurances Due Date.

25. Ansul shall submit all executed and/or otherwise finalized Financial Assurance instruments or other related documents to U.S. EPA's Regional Comptroller (MF-10J), 77 W. Jackson Blvd., Chicago, IL 60604-3590, within 90 days after the effective date of this Consent Order. It shall include with the instrument a cover letter indicating the name of the site, its hazardous waste identification number and the name of the U.S. EPA Project Manager and Attorney assigned to the site. Ansul shall also provide copies to:

Gary Cygan, Project Manager (LU-9J)  
Land and Chemicals Division  
U.S. EPA – Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604-3590

Richard J. Clarizio,  
Associate Regional Counsel, (C-14J)  
Office of Regional Counsel  
U.S. EPA- Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604-3590

a. If at any time Ansul provides financial assurance for completion of the Work by means of a corporate guarantee or financial test, Ansul shall also comply with the other relevant requirements of 40 C.F.R. §264.143(f), 40 C.F.R. §264.151(f), and 40 C.F.R. §264.151(h)(1) relating to these methods, and will promptly provide any additional information requested by U.S. EPA from Ansul or corporate guarantor at any time.

b. For purposes of the corporate guarantee or the financial test described above, references in 40 C.F.R. §264.143(f) to the sum of current closure and post-closure costs and the current plugging and abandonment cost estimates shall mean "the sum of all environmental remediation obligations" (including obligations under CERCLA, RCRA, UIC, TSCA and any other state or tribal environmental obligation) guaranteed by such company or for which such company is otherwise financially obligated in addition to the Cost Estimate.

c. Ansul may combine more than one mechanism to demonstrate financial assurance for the Work to Be Performed under Section VI of this Order.

d. Ansul may satisfy its obligation to provide financial assurance for the Work by providing a third party who assumes full responsibility for the Work and otherwise satisfies the obligations of the financial assurance requirements of this Order; however, Ansul shall remain responsible for providing financial assurance in the event such third party fails to do so and any financial assurance from a third party shall be in one of the forms provided in subparagraphs 24(a)(i) through 24(a)(iv) above.

e. If at any time U.S. EPA determines that a Cost Estimate or a financial assurance mechanism provided pursuant to this Section is inadequate, U.S. EPA shall notify Ansul in writing. If at any time Ansul becomes aware of information indicating that any Cost Estimate(s) or financial assurance mechanism(s) provided pursuant to this Section is inadequate, Ansul shall notify U.S. EPA in writing of such information within ten days. Within thirty (30) days of receipt of notice of U.S. EPA's determination, or within thirty (30) days of Ansul's becoming aware of such information, Ansul shall obtain and present to U.S. EPA for approval a proposal for a revised Cost Estimate or a revised or alternative form of financial assurance listed in Paragraph 24(a) above that satisfies all requirements set forth in this Section.

f. Ansul's inability or failure to establish or maintain financial assurance for completion of the Work shall in no way excuse performance of any other requirements of this Order.

26. Modification of Amount and/or Form of Performance Guarantee

a. Reduction of Amount of Financial Assurance. If Ansul believes that the Cost Estimate has diminished below the amount covered by the existing financial assurance provided under this Order, Ansul may, at the same time that Ansul submits its annual Cost Estimate, submit a written proposal to U.S. EPA for approval to reduce the amount of the financial assurance to equal the revised Cost Estimate.



b. Change of Form of Financial Assurance. If Ansul desires to change the form or terms of financial assurance, Ansul may, at the same time that Ansul submits the annual Cost Estimate, submit a written proposal to U.S. EPA for approval to change the form of financial assurance. The written proposal shall specify all proposed instruments or other documents required in order to make the proposed financial assurance legally binding and shall satisfy all requirements set forth in this Section. Within ten (10) days after receiving written approval of the proposed revised or alternative financial assurance, Ansul shall execute and/or otherwise finalize all instruments or other documents required in order to make the selected financial assurance legally binding. Ansul shall submit all executed and/or otherwise finalized instruments or other documents required in order to make the selected financial assurance legally binding to the U.S. EPA Comptroller's Office, with a copy to U.S. EPA's Project Manager, as provided in paragraph 25, above.

c. Release of Financial Assurance. Ansul may submit a written request to the Director, Land and Chemicals Division that U.S. EPA release Ansul from the requirement to maintain financial assurance under this Section once U.S. EPA and Ansul have both executed an Acknowledgment of Termination pursuant to Section XVIII (Termination and Satisfaction) of the Order. The Director, Land and Chemicals Division shall notify both the Ansul and the provider(s) of the financial assurance that Ansul is released from all financial assurance obligations under this Order.

27. Performance Failure

a. If U.S. EPA determines that Ansul (i) has ceased implementing any portion of the Work, (ii) is significantly or repeatedly deficient or late in its performance of the Work, or (iii) is implementing the Work in a manner that may cause an endangerment to human health or the environment, U.S. EPA may issue a written notice (Performance Failure Notice) to both Ansul and the financial assurance provider of Ansul's failure to perform. The notice issued by U.S. EPA will specify the grounds upon which such a notice was issued and will provide Ansul with a period of twenty (20) days within which to remedy the circumstances giving rise to the issuance of such notice.

b. Failure by Ansul to remedy the relevant Performance Failure to U.S. EPA's satisfaction before the expiration of the twenty-day notice period specified in Paragraph 27(a) shall trigger U.S. EPA's right to have immediate access to and benefit of the financial assurance provided pursuant to subparagraphs 24.a.i-v. If U.S. EPA is unable after reasonable efforts to secure payment of funds or performance of work from the financial assurance provider, then upon written notice from U.S. EPA, Ansul shall within twenty (20) days deposit into a trust fund approved by U.S. EPA, a cash amount equal to the Cost Estimate.

#### VIII. ACCESS

28. Upon reasonable notice, and at reasonable times, U.S. EPA, its contractors, employees, and any designated U.S. EPA representatives may enter and freely move about the Facility to, among other things: interview Facility personnel and contractors; review Ansul's progress in carrying out the terms of this Order; conduct tests, sampling, or monitoring as U.S. EPA deems necessary; use a camera, sound recording, or other documentary equipment; and verify the reports and data Ansul submits to U.S. EPA. Ansul must permit such persons to inspect and copy all non-privileged photographs and documents, including all sampling and monitoring data, that pertain to work undertaken under this Order and that are within the possession or under the control of Ansul, or their contractors or consultants. Ansul may request split samples, or copies of all photographs, tapes, videos or other recorded evidence created by U.S. EPA and releasable under the Freedom of Information Act. Ansul may make Confidential Business Information claims on documents, photographs, and information supplied to U.S. EPA by Ansul under this paragraph 28. If Ansul must go beyond the Facility's boundary to perform work required by this Order, Ansul must use its best efforts to obtain the necessary access agreements from the present owner(s) of such property within 30 days after Ansul knows of the need for access. Any such access agreement must provide for access by U.S. EPA and its representatives. Ansul must submit a copy of any access agreement to U.S. EPA's Project Manager. If it does not obtain agreements for access within 30 days, Ansul must notify U.S. EPA in writing within 14 additional days of both the efforts undertaken to obtain access and the failure to obtain access agreements. U.S. EPA may, at its discretion, assist Ansul in obtaining access.

29. Nothing in this Section limits or otherwise affects U.S. EPA's right of access and entry under applicable law, including RCRA and CERCLA.

## IX. RECORD PRESERVATION

30. Ansul must retain, during the pendency of this Order and for at least six years after the Order terminates, all data and all final documents now in its possession or control or which come into its possession or control which relate to this Order. Ansul must notify U.S. EPA in writing 90 days before destroying any such records, and give U.S. EPA the opportunity to take possession of any non-privileged documents. Ansul's notice must refer to the effective date, caption, and docket number of this Order and must be addressed to:

Margaret M. Guerriero, Director (L-8J)  
Land and Chemicals Division  
U.S. EPA, Region 5  
77 West Jackson Boulevard  
Chicago, IL 60604-3590

Ansul must also promptly give U.S. EPA's Project Manager and Attorney a copy of the notice.

31. Within 30 days of retaining or employing any agent, consultant, or contractor (agents) to carry out the terms of this Order, Ansul shall enter into an agreement with the agents to give Ansul a copy of all data and final non-privileged documents produced under this Order.

32. Ansul shall not assert any privilege claim concerning any data gathered during any investigations or other actions required by this Order.

## X. STIPULATED PENALTIES

33. Unless there has been a written modification by U.S. EPA of a compliance date or other term of this Order, or a delay that has been excused under Section XII: Force Majeure and Excusable Delay, Ansul must pay the following stipulated penalties to the United States for violations of this Order:

- a. For failure to submit quarterly progress reports by the dates scheduled in paragraph 21(b), above: \$750 per day for the first 14 days and \$1,500 per day thereafter.
- b. For failure to complete Corrective Measures on-time per the Order in accordance with the schedule and requirements described in paragraph 11(a-h): \$3,000 per day for the first 14 days and \$6,000 per day thereafter.
- c. For failure to implement, according to the schedule and terms, the operation, maintenance, and monitoring plans as required by paragraph 21(d): \$750 per day for the first 14 days and \$1,500 per day thereafter.

- d. For failure to submit supplemental information as required and scheduled in paragraph 20: \$1,500 per day for the first 14 days and \$3,000 per day thereafter.
- e. For failure to provide the cost estimate, financial security, and yearly update as required and scheduled in Section VII: \$1,500 per day for the first 14 days and \$3,000 per day thereafter
- f. For failure to maintain the institutional controls as required in paragraphs 11(a), 12, 14 and 15: \$2,000 per day for the first 14 days and \$4,000 per day thereafter
- g. For failure to submit any of the final completion reports for components in paragraph 11(b-h) and the Final Remedy Construction Completion Report: \$1,000 per day for the first 14 days and \$2,000 per day thereafter.
- h. For failure to timely submit a complete and approvable work plans as required by paragraph 11 of this Order and the Confirmation Sampling and Long-Term Monitoring Plans required by Section IV of the SOW (Attachment 2): \$2,000 per day for the first 14 days and \$4,000 per day thereafter.

34. Ansul's submissions to U.S. EPA required by this Order shall be considered timely submitted if they are post-marked and mailed, faxed or electronically signed and submitted on or before the due dates identified in this Order, unless otherwise specified. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or federal holiday, the period shall run until the end of the next business day.

35. Whether or not Ansul has received notice of a violation, stipulated penalties shall begin to accrue on the day a violation occurs, and shall continue to accrue until Ansul completes the task or submits the required deliverable. Separate stipulated penalties for separate violations of this Order shall accrue simultaneously.

36. Ansul must pay any stipulated penalties owed to the United States under this Section within 30 days of receiving U.S. EPA's written demand to pay the penalties, unless Ansul invokes the dispute resolution procedures under Section XI: Dispute Resolution. A written demand for stipulated penalties shall describe the violation and shall indicate the amount of penalties due.

37. Interest shall begin to accrue on any unpaid stipulated penalty balance beginning 31 days after Ansul receives U.S. EPA's demand letter. Interest shall accrue at the current value of funds rate established by the Secretary of the Treasury. Under 31 U.S.C. § 3717, Ansul must pay an additional penalty of six percent per year on any unpaid stipulated penalty balance more than 90 days overdue (e.g., more than 90 days after Ansul receives U.S. EPA's demand letter).

38. Ansul must pay all penalties by certified or cashier's check payable to the United States of America, and must send the check to:

U.S. Environmental Protection Agency  
Fines and Penalties  
Cincinnati Finance Center  
P.O. Box 979077  
St. Louis, MO 63119-9000

A transmittal letter stating the name of the Facility, Ansul's name and address, and the U.S. EPA docket number of this action must accompany the payment. Ansul must simultaneously send a copy of the check and transmittal letters to the U.S. EPA Project Manager and Attorney.

39. Ansul may dispute U.S. EPA's assessment of stipulated penalties by invoking the dispute resolution procedures under Section XI: Dispute Resolution. The stipulated penalties in dispute shall continue to accrue, but need not be paid, during the dispute resolution period. Ansul must pay stipulated penalties and interest, if any, according to the dispute resolution decision or agreement. Ansul must submit such payment to U.S. EPA within 30 days after receiving the resolution according to the payment instructions of this Section.

40. Neither invoking dispute resolution nor paying penalties shall affect Ansul's obligation to comply with the terms of this Order not directly in dispute.

41. The stipulated penalties set forth in this Section do not preclude U.S. EPA from pursuing any other remedies or sanctions which may be available to U.S. EPA for Ansul's violation of any terms of this Order. However, U.S. EPA will not seek both a stipulated penalty under this Section and a statutory penalty for the same violation.

#### XI. DISPUTE RESOLUTION

42. The parties will use their best efforts to informally and in good faith resolve all disputes or differences of opinion.

43. If either party disagrees, in whole or in part, with any decision made or action taken under this Order, that party will notify the other party's Project Manager of the dispute. The Project Managers will attempt to resolve the dispute informally.

44. If the Project Managers cannot resolve the dispute informally, either party may pursue the matter formally by placing its objections in writing. A written objection must state the specific points in dispute, the basis for that party's position, and any matters which it considers necessary for determination.

45. The parties will in good faith attempt to resolve the dispute through formal negotiations within 21 days, or a longer period if agreed in writing by the parties. During formal negotiations, either party may request a conference with appropriate senior management to discuss the dispute.

46. If the parties are unable to reach an agreement through formal negotiations, within 14 business days after any formal negotiations end, the parties may submit additional written information to the Director of the Land and Chemical Division, U.S. EPA Region 5. U.S. EPA will maintain a record of the dispute, which will contain all statements of position and any other documentation submitted pursuant to this Section. U.S. EPA will allow timely submission of relevant supplemental statements of position by the parties to the dispute. Based on the record, U.S. EPA will respond to Ansul's arguments and evidence and provide a detailed written decision on the dispute signed by the Director of the Land and Chemical Division U.S. EPA, Region 5 (EPA Dispute Decision).

47. If, at the conclusion of the Dispute Resolution process, Ansul notifies U.S. EPA that it refuses to implement U.S. EPA's selected final corrective measures, U.S. EPA will endeavor to pursue the action(s) it deems necessary, if any, within a reasonable period of time.

## XII. FORCE MAJEURE AND EXCUSABLE DELAY

48. Force majeure, for purposes of this Order, is any event arising from causes not foreseen and beyond Ansul's control that delays or prevents the timely performance of any obligation under this Order despite Ansul's best efforts.

49. If any event occurs or has occurred that may delay the performance of any obligation under this Order, whether or not caused by a force majeure event, Ansul must notify U.S. EPA within two business days after learning that the event may cause a delay. If Ansul wishes to claim a force majeure event, within 15 business days thereafter Ansul must provide to U.S. EPA in writing all relevant information relating to the claim, including a proposed revised schedule.

50. If U.S. EPA determines that a delay or anticipated delay is attributable to a force majeure event, U.S. EPA will extend in writing the time to perform the obligation affected by the force majeure event for such time as U.S. EPA determines is necessary to complete the obligation or obligations.

## XIII. MODIFICATION

51. This Order may be modified only by mutual agreement of U.S. EPA and Ansul, except as provided in paragraph 22. Any agreed modifications shall be in writing, shall be signed by both parties, shall be effective on the date of signature by U.S. EPA, and shall be incorporated into this Order.

#### XIV. RESERVATION OF RIGHTS

52. Nothing in this Order restricts U.S. EPA's authority to seek Ansul's compliance with the Order and applicable laws and regulations. For violations of this Order, U.S. EPA reserves its rights to bring an action to enforce the Order, to assess penalties under Section 3008(h)(2) of RCRA, 42 U.S.C. § 6928(h)(2), and to issue an administrative order to perform corrective actions or other response measures. In any later proceeding, Ansul shall not assert or maintain any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon a contention that the claims raised by the United States in the later proceeding were or should have been raised here. This Order is not a covenant not to sue, release, waiver, or limitation of any rights, remedies, powers, or authorities of U.S. EPA.

53. U.S. EPA reserves all of its rights to perform any portion of the work consented to here or any additional site characterization, feasibility study, and remedial work as it deems necessary to protect human health or the environment.

54. If U.S. EPA determines that Ansul's actions related to this Order have caused or may cause a release of hazardous waste or hazardous constituent(s), or a threat to human health or the environment, or that Ansul cannot perform any of the work ordered, U.S. EPA may order Ansul to stop implementing this Order for the time U.S. EPA determines may be needed to abate the release or threat and to take any action that U.S. EPA determines is necessary to abate the release or threat.

55. Ansul does not admit any of U.S. EPA's factual or legal determinations. Except for the specific waivers in this Order, Ansul reserves all of its rights, remedies and defenses, including all rights and defenses it may have: (a) to challenge U.S. EPA's performance of work; (b) to challenge U.S. EPA's stop work orders; (c) regarding liability or responsibility for conditions at the Facility, except for its right to contest U.S. EPA's jurisdiction to issue or enforce this Order, and (d) whether U.S. EPA's actions are arbitrary or capricious. Ansul has entered into this Order in good faith without trial or adjudication of any issue of fact or law. Ansul reserves its right to seek judicial review of U.S. EPA actions taken under this Order, including a proceeding brought by the United States to enforce the Order or to collect penalties for violations of the Order.

## XV. OTHER CLAIMS

56. Ansul waives any claims or demands for compensation or payment under Section 106(b), 111, and 112 of CERCLA, 42 U.S.C. §§ 9606(b), 9621 and 9622 against the United States or the Hazardous Substance Superfund established by 26 U.S.C. § 9507 for, or arising out of, any activity performed or expense incurred under this Order. Additionally, this Order is not a decision on preauthorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9621(a)(2).

## XVI. INDEMNIFICATION OF THE UNITED STATES GOVERNMENT

57. Ansul indemnifies, saves and holds harmless the United States, its agencies, departments, agents, and employees, from all claims or causes of action arising from or on account of acts or omissions of Ansul or its officers, employees, agents, independent contractors, receivers, trustees, and assigns in carrying out activities required by this Order. This indemnification shall not affect or limit the rights or obligations of Ansul or the United States under their various contracts. This indemnification shall not create any obligation on the part of Ansul to indemnify the United States from claims arising from the acts or omissions of the United States.

## XVII. SEVERABILITY

58. If any judicial or administrative authority holds any provision of this Order to be invalid, the remaining provisions shall remain in force and will not be affected.



### XVIII. TERMINATION AND SATISFACTION

59. Ansul may request that U.S. EPA issue a determination that Ansul has met the requirements of the Order for all or a portion of the Facility. Ansul may also request that U.S. EPA issue a "no further interest" or "no further action" determination for all or a portion of the Facility.

60. The provisions of the Order will be satisfied upon Ansul's and U.S. EPA's execution of a written agreement terminating this Order signed by both parties ("Acknowledgment of Termination" or "Acknowledgment.")


61. Ansul's execution of the Acknowledgment will affirm its continuing obligation to preserve all records as required by Section IX, to maintain any necessary institutional controls or other long term measures as required by Section VI, and to recognize U.S. EPA's reservation of rights as required in Section XIV.

### XIX. EFFECTIVE DATE

62. This Order is effective on the date that U.S. EPA signs the Order.

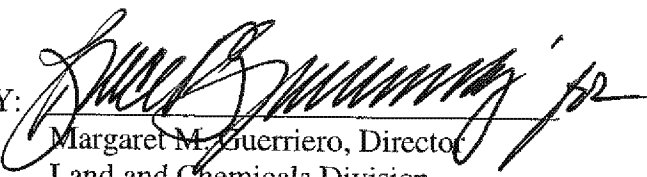
#### IT IS SO AGREED:

DATE: 2/16/09

BY:   
William S. Hewitt, Jr.  
Vice President and Assistant Secretary  
Ansul, Incorporated  
Respondent

#### IT IS SO ORDERED:

DATE: 2/26/09

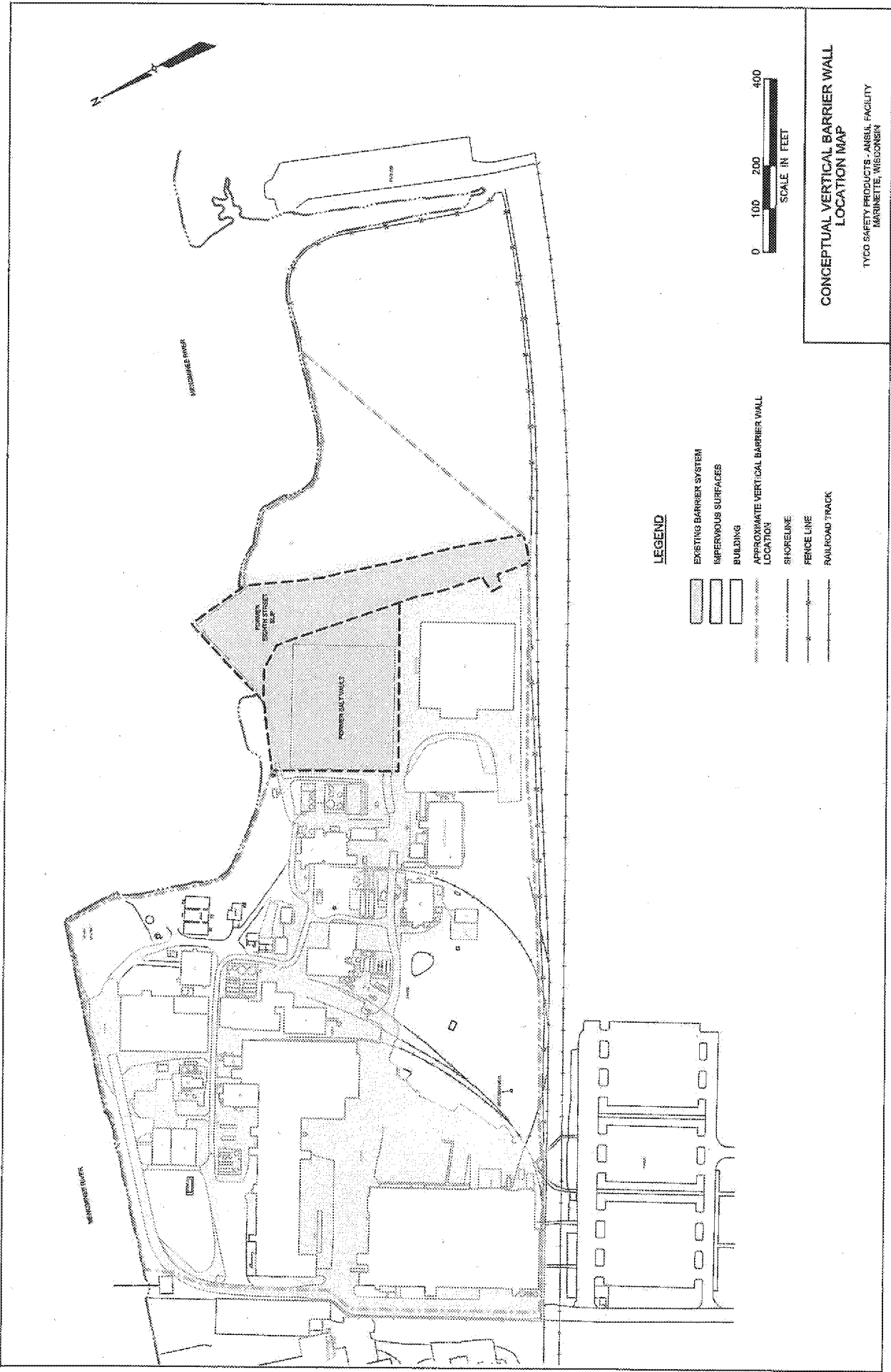
BY:   
Margaret M. Guerriero, Director  
Land and Chemicals Division  
U.S. Environmental Protection Agency, Region 5



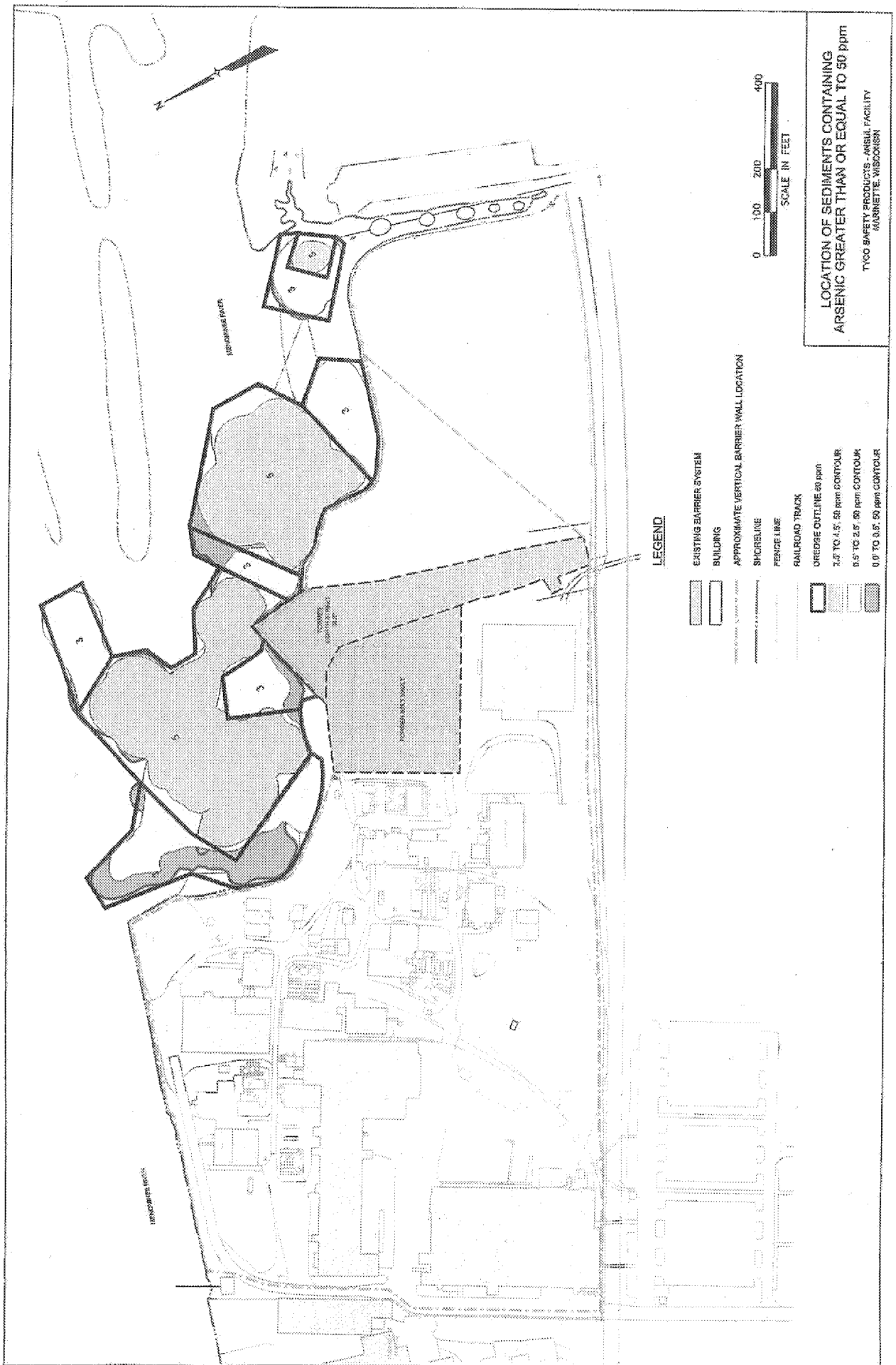
**FIGURE 1**



## FIGURE 2



**FIGURE 3**





**FINAL DECISION AND  
RESPONSE TO COMMENTS**

**for**

**Ansul Fire and Safety, Inc.  
Marinette, Wisconsin**

**EPA I.D. No. WID 006 125 215**



site in addition to providing a treatment technology, reverse osmosis, to remediate the arsenic (and other contaminants). Ansul will operate the groundwater system in an effort to keep groundwater located on-site within the containment area at a constant elevation and to keep groundwater from mounding. Collected groundwater will be treated to meet allowable disposal levels. The treatment system will remove arsenic, as well as other contaminants identified at the site and in the groundwater. Waste generated during the treatment process will be sampled, handled, transported and disposed of appropriately at an off-site location.

- Cap on-site surface soils at locations equal to or exceeding 32 ppm arsenic. The cap shall be designed and maintained in order to prevent human and ecological exposure to soil with an arsenic concentration of greater than or equal to 32 parts per million (ppm). Ansul will perform an annual inspection and repair of the caps per an approved operation and maintenance plan. Figure 1 shows the areas on-site where it is anticipated cap(s) will be installed.
- Where possible, plant hybrid poplar trees to augment the shallow ground-water collection system through using the tree root ground-water extraction capability. The extent of acreage planned with trees will be dependent upon further field testing and groundwater modeling. Ansul will ensure that leaves are properly collected and disposed when they fall to the ground. If tree planting is not implemented Ansul will provide an alternate mechanical pumping system which will augment the shallow groundwater collection system.
- Remove surface-soils at arsenic concentrations equal to or greater than 16 ppm located near the railroad off-site (see Figure 1).
- Remove and properly dispose of all Menominee river sediments at arsenic concentrations equal to or greater than 50 ppm using mechanical dredging techniques (see Figure 3). Ansul will de-water and dispose of sediments appropriately off-site. Sediment removal activities will be conducted in accordance with all applicable laws and so as to minimize reentrainment of contaminants in the water. It is anticipated that dredging will begin after Ansul installs the groundwater barrier wall described above.
- Implement Monitored Natural Recovery using a comprehensive monitoring program to ensure the target cleanup arsenic value of 20 ppm for river sediments is achieved within 10 years of the completion of dredging and to ensure the long-term integrity of the remedy and protection of human health and the environment. During the MNR phase, institutional controls will be in place to prevent digging or trenching in the affected area in addition to a "no anchoring" zone being established.

(performance, reliability, implementability and safety); 2) overall protection of human health; 3) overall protection of environment; and 4) institutional controls. Alternatives considered and rejected for the on-site remedy are either not technologically proven to work in practice given the high arsenic concentrations at the site or would be very difficult to implement, such as in situ stabilization. Alternatives considered and rejected for the off-site remedy are sediments caps and variations of dredging techniques. Sand caps were rejected due to the very soluble nature of the arsenic contamination and hydraulic conditions causing discharge of arsenic contaminated groundwater to the river sediments. Additional grave shortcomings are long term integrity of the cap and maintenance. Cost and ability to implement the remedy were principal factors in choosing mechanical over hydraulic dredging.

### **Public Participation Activities and Comments**

On September 20, 2007 a public meeting was held at the Marinette City Hall located at 1905 Hall Avenue, in Marinette, Wisconsin to present the Statement of Basis and accept oral comments. Eleven separate oral comments were made during the public meeting. These comments are presented and responded to in Attachment I.

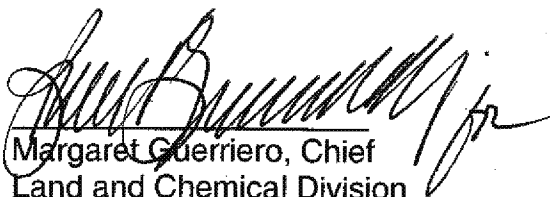
A 45 day public comment period was held from September 10, 2007 through October 29, 2007. One written comment was received during this period and that was from Ansul. Twenty-nine comments from Ansul are presented and responded to in Attachment I.

### **Administrative Record**

The Administrative Record supporting the selected final remedy is available at the Marinette Community Library, and the 7<sup>th</sup> Floor Records Center at the U.S. EPA, Region 5 office. Attachment II identifies all documents contained within the Administrative Record.

### **Declarations**

Based on the Administrative Record compiled for this corrective action, U.S. EPA has determined that the selected remedy for the Ansul facility is appropriate and protective of human health and the environment.

  
Margaret Guerriero, Chief  
Land and Chemical Division  
U.S. EPA, Region 5

2/26/09  
Date

## **ATTACHMENT I**

### **U.S. EPA RESPONSE TO COMMENTS**

#### **Overview**

The U.S. EPA Statement of Basis, containing the proposed remedy for the Tyco Safety Products - Ansul Facility (Ansul), was made available for public review and comment on September 10, 2007. A public meeting was held on September 20, 2007, at the temporary City Hall, Marinette, Wisconsin to accept oral comments on the proposed remedy. The 45-day public comment period was held from September 10, 2007, through October 29, 2007.

The purpose of this document is to provide U.S. EPA's and Wisconsin Department of Natural Resources, in consultation, response to comments received during the 45-day public comment period. All comments received by U.S. EPA are summarized and responses are included below. The transcript of the public meeting held on September 20, 2007, and all public comments received through October 29, 2007 are provided in Attachment II, Index to Administrative Record.

#### **Community Involvement and Concerns**

Oral and written comments were received during the public comment period. The main concerns expressed by the local community were the safety of using trees to pump groundwater within the to-be-constructed containment barrier.

The people making comments contributed to the RCRA Corrective Action process by helping to assure the remedial alternatives for the Ansul facility were reviewed and analyzed from as many viewpoints and aspects as possible, in a reasoned manner.

#### **U.S. EPA Response to Comments**

##### ***Oral Comments***

The following narrative summarizes the oral comments and questions by the local community at the September 20, 2007, public meeting and provides our response to each comment. Each oral comment is numbered and presented in italicized type. In some cases, the question or comment is paraphrased.

- 1. Will precautions be used to prevent the dredging project from causing additional contamination in other parts of the river?*

All appropriate and available precautions will be used to help prevent any additional

The Ansul site has complex geology and manufacturing history. A significant amount of work has gone into finding the extent of contamination at Ansul, in addition to addressing it. Since the amount of contamination is significant, all parties needed some time to develop cleanup target values for arsenic that would be protective. Currently we know of no reasonable, cost effective technique that would clean up the groundwater on site. Therefore, containment of ground water, capping certain areas and remediation of sediments would protect human health and the environment. Since science and technology is constantly changing and improving, we also intend to reconsider our approach to cleaning up the arsenic in groundwater every 5 years in light of the advances in environmental cleanup during those 5 years.

5. *Was anyone aware of the seriousness of having arsenic stored openly? Didn't anyone realize that it was a hazard?*

Ansul, the State of Wisconsin and EPA have been working to address the arsenic contamination at and from the site for a long time. In 1971 the State of Wisconsin and Ansul entered a consent agreement which required Ansul to take certain remediation steps. In 1990 EPA and Ansul entered in to an agreement for Ansul to study and propose additional steps for remediation of arsenic. Since that time Ansul has taken a number of steps at remediating the threats posed by arsenic. One of those steps included closing the 8<sup>th</sup> street slip.

6. *Is there some kind of legal agreement for the barrier wall and is the barrier wall exposed to corrosion or a potential to be breached at some point?*

Upon selection of the remedy EPA will enter into negotiations with Ansul for it to perform the remedy. If those negotiations are successful, Ansul and EPA will enter into a document which EPA can legally enforce. That document will identify the major components of the selected remedy and require Ansul to provide further detail such as design, construction and operation requirements and schedules for implementation. The U.S. EPA has the authority to issue a unilateral order to Ansul if it shall become necessary. Regarding the potential for corrosion and eventual breaching of the containment barrier, we will have Ansul submit an Operations and Maintenance work plan. This document will hold the company responsible to ensure the integrity of the barrier wall. It will also describe all of the monitoring that will be done to document the barrier wall is performing as expected.

7. *Is the contaminated sediment located only in the section of river called the turning basin?*

Extensive sediment testing has shown that the largest concentrations and volume of arsenic containing sediment is within the turning basin. Smaller volumes of contaminated sediment, with significantly lower concentrations do occur at locations downstream of the turning basin. The locations where the sediment concentrations exceed the cleanup standards will also be cleaned up.

2) *The SB proposes capping surface soil with asphalt in high traffic areas and soil or gravel in less used areas. Capping areas with soil that contains arsenic at concentrations greater than or equal to 32 ppm will result in a Facility-wide average arsenic concentration of 16 ppm in surface soils, which is protective of human health and the environment. At this time, the type of capping materials that will be used to cap surface soil in specific areas has not been determined. Asphalt capping is reasonable in areas where surrounding soil is capped by asphalt; however, in other areas, capping with soil or gravel may be more appropriate since asphalt would likely deteriorate if used to cover relatively small, isolated areas.*

Details of capping will be included in the Work Plan that Ansul will submit to EPA for review and approval. The cap will be protective of human health.

3) *As part of institutional controls, EPA proposes that groundwater be maintained at a "prescribed depth". This term is vague and Ansul suggests that the SB indicate that groundwater levels be maintained at optimal depths below ground surface that prevent flooding the facility.*

We agree that groundwater levels be maintained at depths below ground surface that prevent flooding the facility.

4) *Ansul will develop Institutional Control (IC) Plans for the facility that will expand on the institutional controls already in place to safeguard workers and the community. The SB specifies that the IC Plan be prepared within 120 days of EPA's selection of the remedy. Since protective measures are already in place, Ansul requests that Terrestrial IC Plan for the Manufacturing and Wetland Areas be submitted 180 days after EPA and WDNR approval of the Phase I and Phase II Corrective Measures Work Plans. This will allow the IC Plan to be fully coordinated with the corrective measures construction in accordance with the agency-approved Phase I and Phase II Corrective Measures Work Plans. Similarly, an IC Plan for Menominee River sediments would be submitted 180 days after the terrestrial corrective measures construction activities have been completed.*

Upon further review U.S. EPA has determined that an IC Plan is unnecessary since the institutional controls are known, straightforward and should be implemented as soon as possible. Instead of identifying a date for submission of an IC Plan, U.S. EPA is specifying that the actual institutional controls should be implemented within one year of the effective date of an enforcement agreement with U.S. EPA.

For the land component of the remedy the appropriate institutional control is recording of a deed restriction which ensures that the property use remains industrial, the cover is not disturbed and is inspected and maintained; and the ground water barrier wall system is not disturbed and is maintained; and the ground water is maintained at a prescribed depth and is not used for potable purposes. The location of the barrier wall and the soil capping is known. Consequently, an IC Plan is not required but instead Ansul should submit to

concentration) can be presented in the sediment management plan, when discussing post-dredge performance measures.

8. *The figures are numbered incorrectly in the SB.*

The numbering has been corrected.

Specific Comments:

1. *The SB (page 26 – Impacts to Undeveloped Areas) discusses a meeting with the Army Corps of Engineers (ACOE), EPA, and the WDNR “to discuss permit requirements and how to minimize the wetlands impacts. Following these discussions, Ansul will submit a proposal to US EPA (for approval) that meets the wetlands requirements of ACOE and the WDNR, as well the clean-up goals established for the site. The proposal must be submitted within 60 days following the meeting with the ACOE.” Ansul has met at the facility with ACOE and WDNR representatives to discuss the wetlands; EPA was invited but could not attend. Ansul will continue to keep EPA informed about progress obtaining the wetland permit and any required wetland mitigation will be included in either the Phase II Corrective Measures Work Plan or in a separate Technical Memorandum if the permit is not obtained prior to submittal of the Phase II Work Plan. Ansul requests that the reference to the proposal related to wetlands not be included in the final SB.*

Ansul’s proposal to keep the U.S. EPA informed about progress obtaining the wetland permit and any required wetland mitigation will be included in either the Phase II Corrective Measures Work Plan or in a separate Technical Memorandum.

2. *The selected remedy is “Cap and Contain with Hydraulic Control”. Ansul proposes to clarify that the “Cap” portion of this remedy does not refer to a full cap of the Manufacturing and Wetland Areas. The new areas to be capped are those with exposed surface soil with arsenic concentrations equal to or exceeding 32 ppm. Other areas at the facility will not be capped.*

We agree that the areas to be capped are only those with exposed surface soil with arsenic concentrations equal to or exceeding 32 ppm.

3. *Page 3, 1<sup>st</sup> paragraph, 2<sup>nd</sup> sentence: The reference to a Data Summary Report (2002) should be changed to the Summary of Findings Report – 1974-2000 (URS, 2001).*

We acknowledge the correct title.

4. *Page 4, 2<sup>nd</sup> paragraph, 1<sup>st</sup> sentence: Ansul proposes to add “extract and” to the sentence. The revised sentence would be: “With current technologies it would be extremely difficult to extract and treat the deep groundwater at Ansul having very high arsenic concentrations.”*

the new technologies would need to be evaluated and tested prior to implementation.

11. *Page 17, Section 5.3, last paragraph: Change "one to two years" to "two to three years" for appropriate monitoring after construction of the containment barrier. This will allow adequate time for effective remedy installation and monitoring.*

We believe the time period should remain at one to two years. See also General Comment #6.

12. *Page 18, 6<sup>th</sup> sentence: Add "remediation" at the end of the statement "years after completion of the sediment".*

We acknowledge that adding remediation to the end of the sentence would more fully describe the process.

13. *Page 18, 7<sup>th</sup> sentence: Add "after barrier construction" to the end of the sentence. This time allotment is needed to ensure the river is adequately addressed.*

We believe Ansul should provide a management plan in conjunction with the development of the barrier wall. The plan should outline different path-forward scenarios, depending on the results of the barrier wall monitoring. It is of the utmost importance that an approved sediment management plan is in place well before the completion of the barrier wall monitoring to allow for (dredge) site staging and construction.

14. *Page 20, 1<sup>st</sup> paragraph, 1<sup>st</sup> sentence: There are no hydraulic control mechanisms in place for the interim measures at the former Salt Vault and Eighth Street Slip areas. Only Cap and Contain mechanisms were constructed during interim measures construction activities.*

We acknowledge this point.

15. *Page 20, 1<sup>st</sup> paragraph: The paragraph states: "It should be noted that arsenic is poisonous to most plant life;" Ansul suggests that this statement be changed to: "It should be noted that arsenic can be poisonous to most plant life at concentrations above naturally occurring background concentrations;"*

We acknowledge this point.

16. *Page 29, Item 2, last sentence: Add "If these targets are not attained within 10 years after final dredging then some other..." This will be required to allow for proper evaluation of future technologies to address potential residual impacts in the river.*

The addition is acceptable.

17. *Page 29, Item 5: Replace 1 year with "within 2 to 3 years" to allow for proper*



Please refer to table 2 of the document that lists individual fish samples with highest arsenic concentration. The health consultation document can be viewed at <http://www.atsdr.cdc.gov/HAC/pha/AnsulChemical/Ansul-TycoSafetyProductsHC051506.pdf>.

21. *Section 5.3: It should be noted that only sediment that is greater than 50 ppm in the top two feet of sediment or to a depth equivalent to one foot below the authorized navigational channel depth, whichever is deeper will be removed. If there is sediment below these depths a 0.5 layer of sand will be placed upon the sediment to ensure that surface sediments remain <50 ppm and to encourage recruitment of the benthic community.*

We believe sediment with arsenic greater than or equal to 50 ppm should be dredged irrespective of the depth it is found. If those concentrations exist only in the top two feet of sediment, then those two feet should be removed.

## ATTACHMENT 2

### Scope of Work

Ansul Incorporated  
Marinette, Wisconsin

#### I. Corrective Measures Implementation (CMI) Program Plan

The Respondent shall prepare and submit a CMI Program Plan. This program plan will include the development and implementation of several plans, which shall be prepared concurrently. Since the Corrective Measures will be implemented over a period of years and various specialty contractors may be selected to implement specific work tasks of the Corrective Measures, the CMI Program Management Plan will be periodically updated or amended. The Respondent shall submit a final CMI Program Plan to U.S. EPA within 90 days of the effective date of the Order. The CMI Program Plan will include the following components:

I. Corrective Measures Implementation Program Plan
A. Program Management Plan
B. Program Management Team Organizational Chart
C. Project Schedule
D. Community Relations Plan

##### A. Program Management Plan

The Respondent shall prepare a Program Management Plan which will document the overall management strategy for performing the design, construction, operation, maintenance and monitoring of the Work to Be Performed required by Section VI ("Work to be Performed, or Work") of the Order.

##### B. Program Management Team Organizational Chart

The plan shall document the responsibility, qualifications and authority of all organizations and key personnel involved with the implementation of the Work.

##### C. Project Schedule

The Respondent shall develop a project schedule for construction and implementation of the Work which identifies timing for initiation and completion of all critical path tasks. Respondents shall specifically identify dates for completion of the Work consistent with the schedules contained in the Order. Respondent shall provide a copy to U.S. EPA of the project schedule as follows:

1. for the barrier wall and on-site remediation components of the Work within 90 days of the effective date of the Order;
2. for the on-site ground water management component no later than January 15, 2010;
3. for the river sediment at the time it submits the River Sediment Removal Workplan - May 1, 2010 and for the

### C. Health and Safety Plan

The Respondent shall develop a site-wide Health and Safety Plan to address the activities to be performed at the facility to implement the Work. Respondent shall provide U.S. EPA with a copy of its Health and Safety Plan simultaneous with submission of its CMI Program Plan - within 90 days of the effective date of the Order. Respondent will submit addendums to the Health and Safety Plan for individual components, as necessary. Respondent should submit the addendums 30 days prior to their being implemented.

### III. CONSTRUCTION QUALITY ASSURANCE PROGRAM

The Respondent shall implement a construction quality assurance (CQA) program to ensure, with a reasonable degree of certainty, that the Work will meet or exceed all design criteria, plans and specifications. The Respondent shall construct and implement the Work consistent with its CQA plan. The Respondent shall provide U.S. EPA with a copy of its CQA Plan(s) simultaneous with the submission of a copy of the Final Design Plan(s) - 60 days before commencement of on-site construction. The CQA plan should include the following elements:

III. Construction Quality Assurance (CQA) Program
A. Responsibility & Authority
B. Construction Quality Assurance Personnel Qualifications
C. Inspection Activities
D. Documentation

#### A. Responsibility and Authority

The Respondent shall describe fully in the CQA Plan the responsibility and authority of all organizations (i.e., technical consultants, construction firms, etc.) and key personnel involved in the construction of the Work. The Respondent shall identify a CQA Officer and the necessary supporting inspection staff.

#### B. Construction Quality Assurance Personnel Qualifications

The Respondent shall set forth the qualifications of the CQA Officer and supporting inspection personnel shall be presented in the CQA Plan to demonstrate that they possess the training and experience necessary to fulfill their identified responsibilities.

#### C. Inspection Activities

The Respondent shall summarize in the CQA Plan the observations and tests that will be used to monitor the construction and/or installation of the components of the Work. The plan shall include the scope and frequency of each type of inspection. Inspections shall verify compliance with environmental requirements and include, but not be limited to air quality and emissions monitoring records, waste disposal

completes any outstanding construction items from the pre-final construction inspection. The Respondent shall notify U.S. EPA 30 days before it conducts the final construction inspection. The final inspection shall consist of a walk-through inspection of the project site. The pre-final inspection report will be used as a checklist with the final inspection focusing on the outstanding construction items identified in the pre-final inspection report. Confirmation shall be made that outstanding items have been resolved.

#### D. Documentation

The Respondent shall describe in detail in the CQA plan the reporting requirements for CQA activities. As appropriate to the Work the reporting requirements may include such items as daily summary reports, inspection data sheets, problem identification and Work, design acceptance reports and final documentation. Provisions for the final storage of all records shall be presented in the CQA plan.

#### IV. CONFIRMATION SAMPLING AND LONG-TERM MONITORING PLANS

The Respondent shall develop confirmatory sampling plans for the on-site soil, on-site ground water management, and River Sediment removal.

IV. Confirmation Sampling And Long-Term Monitoring Plans
A. Barrier Wall Groundwater Monitoring Plan
B. Operations & Maintenance Plans

##### A. Barrier Wall Groundwater Monitoring Plan

The Respondent will develop monitoring plans for the long-term monitoring required for the natural recovery and barrier wall monitoring components. The confirmation sampling plans will identify the sampling activities, sample size, sample locations, frequency of testing, criteria for acceptance and rejection and plans for correcting problems required for the Work. Both monitoring and confirmation plans will incorporate U.S. EPA's QAPP instructions, (April, 1998, [www.epa.gov/reg5rcra/ca/modqapp](http://www.epa.gov/reg5rcra/ca/modqapp)).

Respondent shall submit the sampling plans for the on-site soil and ground water management and River Sediment removal for U.S. EPA for review and approval at least 90 days before commencement of the Work specified in the corresponding Final Design Document. Respondent shall submit the monitoring plans for the monitored natural recovery and barrier wall monitoring 90 days before completion of construction of these components. Respondent shall implement the approved sampling plans.

##### B. Operation and Maintenance Plans

The Respondent shall prepare Operation and Maintenance Plans (O & M Plans) for the following Corrective Measures components:

1. vertical barrier wall,

- b. Schedule for implementing these corrective steps.
- 6. Safety Plan:
  - a. Description of precautions, of necessary equipment, etc., for site personnel;
  - b. Safety tasks required in the event of systems failure.
- 7. Description of equipment:
  - a. Equipment identification;
  - b. Installation of monitoring components;
  - c. Maintenance of site equipment;
  - d. Replacement schedule for equipment and installed components.
- 8. Records and reporting mechanisms required:
  - a. Daily operating logs;
  - b. Laboratory records;
  - c. Records for operating costs;
  - d. Mechanism for reporting emergencies;
  - e. Personnel and maintenance records;
  - f. Monthly/annual reports to State agencies.

**V: Other Reports and Submissions**

The Respondent shall submit to U.S. EPA for review and approval a comprehensive draft project completion report referred to as a *Draft Corrective Measures Implementation Report* within 90 days of completion of all Work - 2/1/2024. The report shall document that the project is consistent with the design specifications and the Order, and that the corrective measures are performing adequately. The Report shall include, but not be limited to the following elements:

- a. Synopsis of the corrective measures and certification of the design and construction;
- b. Explanation of any modifications to the plans and why these were necessary for the project;
- c. Listing of the criteria, established before the remedial action was initiated, for judging the functioning of the remedial action and also providing explanation of any modification to these criteria;
- d. Results of facility monitoring, indicating that the remedial action will meet or exceed the performance criteria;
- e. Explanation of the operation and maintenance (including monitoring) to be undertaken at the facility;
- f. Data demonstrating that the Cleanup Standards have been achieved.

The Respondents shall finalize the Corrective Measure Implementation Report incorporating comments received on the draft submission within 90



## ATTACHMENT 2

### Scope of Work

Ansul Incorporated  
Marinette, Wisconsin

#### I. Corrective Measures Implementation (CMI) Program Plan

The Respondent shall prepare and submit a CMI Program Plan. This program plan will include the development and implementation of several plans, which shall be prepared concurrently. Since the Corrective Measures will be implemented over a period of years and various specialty contractors may be selected to implement specific work tasks of the Corrective Measures, the CMI Program Management Plan will be periodically updated or amended. The Respondent shall submit a final CMI Program Plan to U.S. EPA within 90 days of the effective date of the Order. The CMI Program Plan will include the following components:

I. Corrective Measures Implementation Program Plan
A. Program Management Plan
B. Program Management Team Organizational Chart
C. Project Schedule
D. Community Relations Plan

##### A. Program Management Plan

The Respondent shall prepare a Program Management Plan which will document the overall management strategy for performing the design, construction, operation, maintenance and monitoring of the Work to Be Performed required by Section VI ("Work to be Performed, or Work") of the Order.

##### B. Program Management Team Organizational Chart

The plan shall document the responsibility, qualifications and authority of all organizations and key personnel involved with the implementation of the Work.

##### C. Project Schedule

The Respondent shall develop a project schedule for construction and implementation of the Work which identifies timing for initiation and completion of all critical path tasks. Respondents shall specifically identify dates for completion of the Work consistent with the schedules contained in the Order. Respondent shall provide a copy to U.S. EPA of the project schedule as follows:

1. for the barrier wall and on-site remediation components of the Work within 90 days of the effective date of the Order;
2. for the on-site ground water management component no later than January 15, 2010;
3. for the river sediment at the time it submits the River Sediment Removal Workplan - May 1, 2010 and for the





monitored natural recovery component at the time it submits the MNR Workplan - November 1, 2012.

#### D. Community Relations Plan

The Respondent shall develop and distribute to the public Fact Sheets related to the barrier wall, river sediment dredging removal and monitored natural recovery components of the Work required by the Order. Respondent shall distribute the Fact Sheets to the public 10 days prior to initiation of on-site construction for these components of the Work. Respondent shall provide EPA with a copy 10 days before distribution to the public.

## II. DESIGN

The Respondent shall prepare final construction plans and specifications to implement the Work. Based on the CMI Program Plan, three separate CMI Work Plans will be submitted.

II. Design: 1) Phase I - VBW (Completed); 2) Phase II Hydraulic Control & Soil Cap; and 3) Menominee River
A. Design Plans & Specifications
B. Subcontractor Bid Packages
C. Health & Safety Plan

#### A. Design Plans and Specifications

The Respondent shall develop clear and comprehensive design plans for the barrier wall, on-site soil capping, on-site ground water management, and river sediment removal components of the Work. The Respondent shall submit to the EPA for review and approval the design plans for the sediment removal activities.

Phase I CMI Work Plan: On December 18, 2007, Tyco submitted the *Phase I Corrective Measures Implementation Work Plan* (Earth Tech, December 2007) to the U.S. EPA and WDNR. On January 18, 2008, the U.S. EPA and WDNR issued a letter entitled *Phase I Corrective Measures Implementation Work Plan - Tyco Safety Products -Ansul Stanton Street Facility* that provided written approval "with modifications" of the *Phase I Corrective Measures Implementation Work Plan* (Earth Tech, December 2007). The response to U.S. EPA/WDNR comments were submitted February 14, 2008, and errata pages to the *Phase I Corrective Measures Implementation Work Plan* were submitted February 22, 2008.

#### B. Subcontractor Bid Packages

The Respondent shall provide U.S. EPA with a copy of its Final Design Plan(s) and specifications 60 days prior to commencement of on-site construction activities related to the Work. The quality of the design documents shall be such that they will be ready, as is, for bid advertisement. The design documents shall also provide sufficient detail related to the construction and design of the Work. A Project Manual will be prepared and submitted to potential contractors that will include: 1) Request for Proposal; 2) Proposal Form; 3) Construction Subagreement; 4) Performance and Payment Bond Forms; 5) General and Supplementary Conditions; and 6) Project Specifications.



### C. Health and Safety Plan

The Respondent shall develop a site-wide Health and Safety Plan to address the activities to be performed at the facility to implement the Work. Respondent shall provide U.S. EPA with a copy of its Health and Safety Plan simultaneous with submission of its CMI Program Plan - within 90 days of the effective date of the Order. Respondent will submit addendums to the Health and Safety Plan for individual components, as necessary. Respondent should submit the addendums 30 days prior to their being implemented.

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The Respondent shall implement a construction quality assurance (CQA) program to ensure, with a reasonable degree of certainty, that the Work will meet or exceed all design criteria, plans and specifications. The Respondent shall construct and implement the Work consistent with its CQA plan. The Respondent shall provide U.S. EPA with a copy of its CQA Plan(s) simultaneous with the submission of a copy of the Final Design Plan(s) - 60 days before commencement of on-site construction. The CQA plan should include the following elements:

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#### B. Construction Quality Assurance Personnel Qualifications

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#### C. Inspection Activities

The Respondent shall summarize in the CQA Plan the observations and tests that will be used to monitor the construction and/or installation of the components of the Work. The plan shall include the scope and frequency of each type of inspection. Inspections shall verify compliance with environmental requirements and include, but not be limited to air quality and emissions monitoring records, waste disposal



records (e.g., RCRA transportation manifests), etc. The inspection shall also ensure compliance with all health and safety procedures. In addition to the oversight inspections, the Respondents shall conduct the following activities:

1. Preconstruction inspection and meeting

The Respondents shall conduct a preconstruction inspection and meeting to:

- a. Review methods for documenting and reporting inspection data;
- b. Review methods for distributing and storing documents and reports;
- c. Review work area security and safety protocol;
- d. Discuss any appropriate modifications of the construction quality assurance plan to ensure that site-specific considerations are addressed;
- e. Conduct a site walk-around to verify that the design criteria, plans and specifications are understood and to review material and equipment storage locations. The preconstruction inspection and meeting shall be documented by a designated person and minutes shall be transmitted to all parties

2. Prefinal construction inspection

After 80% completion of the construction elements of each Final Design Plan (i.e., construction of barrier wall, on-site/off-site soil remediation, shallow groundwater augmentation system, river sediment removal, monitored natural recovery), Respondents shall conduct a pre-final inspection. Respondent shall notify U.S. EPA 30 days before it conducts a pre-final inspection. The pre-final inspection shall consist of a walk-through inspection of the entire project site. The inspection is to determine whether the Work elements are complete and consistent with the requirements of the Order. Any outstanding construction items discovered during the inspection shall be identified and noted. Additionally, where treatment is a part of the Work, treatment equipment shall be operationally tested by Respondent. The Respondent shall certify that the equipment has performed to meet the purpose and intent of the specifications. Retesting will be completed where deficiencies are revealed. The Respondent shall outline in the pre-final inspection report the outstanding construction items, actions required to resolve items, completion date for these items and date for final inspection.

3. Final construction inspection

The Respondent shall conduct a final construction inspection after it



completes any outstanding construction items from the pre-final construction inspection. The Respondent shall notify U.S. EPA 30 days before it conducts the final construction inspection. The final inspection shall consist of a walk-through inspection of the project site. The pre-final inspection report will be used as a checklist with the final inspection focusing on the outstanding construction items identified in the pre-final inspection report. Confirmation shall be made that outstanding items have been resolved.

#### D. Documentation

The Respondent shall describe in detail in the CQA plan the reporting requirements for CQA activities. As appropriate to the Work the reporting requirements may include such items as daily summary reports, inspection data sheets, problem identification and Work, design acceptance reports and final documentation. Provisions for the final storage of all records shall be presented in the CQA plan.

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Respondent shall submit the sampling plans for the on-site soil and ground water management and River Sediment removal for U.S. EPA for review and approval at least 90 days before commencement of the Work specified in the corresponding Final Design Document. Respondent shall submit the monitoring plans for the monitored natural recovery and barrier wall monitoring 90 days before completion of construction of these components. Respondent shall implement the approved sampling plans.

##### B. Operation and Maintenance Plans

The Respondent shall prepare Operation and Maintenance Plans (O & M Plans) for the following Corrective Measures components:

1. vertical barrier wall,





2. on-site soil cap,
3. on-site ground water management, and
4. river sediment removal.

Respondent will submit drafts of the O & M Plans for the barrier wall and on-site ground water management components by May 1, 2010 (180 days prior to completion of installation of the barrier wall). Respondent will submit the draft O & M Plan for the on-site soil remediation component by February 15, 2010 (45 days of completion of the capping activities). Respondent shall submit the draft O & M Plan for the river sediment removal component simultaneously with the river sediment removal Final Design document - which is 90 days prior to commencement of the Work specified in the river sediment removal Final Design Plan. These draft O & M Plans are subject to U.S. EPA review and approval.

The O & M Plans will cover both implementation and long-term maintenance of the Work. Respondent shall revise the draft O & M Plan(s) in accordance with U.S. EPA's comments. Respondent shall submit the final O & M Plan(s) within 30 days of receipt of U.S. EPA's comments. The approved O & M Plan(s) become an enforceable part of the Order. The final O & M Plan(s) shall include the following elements:

1. Description of normal operation and maintenance (O&M):
  - a. Description of tasks for operation;
  - b. Description of tasks for maintenance;
  - c. Description of prescribed treatment or operation conditions;
  - d. Schedule showing frequency of each O&M task.
2. Description of potential operating problems:
  - a. Description and analysis of potential operation problems;
  - b. Sources of information regarding problems;
  - c. Common and/or anticipated remedies.
3. Description of routine monitoring and laboratory testing:
  - a. Description of monitoring tasks;
  - b. Description of required laboratory tasks and their interpretation;
  - c. Required data collection, Quality Assurance Project Plan (QAPP);
  - d. Schedule of monitoring frequency;
  - e. Description of triggering mechanisms for action from monitoring results.
4. Description of alternate O&M:
  - a. Should system fail, alternate procedures to prevent pollutants or contaminants which may endanger public health and the environment or exceed cleanup standards;
  - b. Analysis of vulnerability and additional resource requirements should a failure occur.
5. Corrective Steps:
  - a. Description of corrective steps to be implemented in the event that cleanup or performance standards are not met;



- b. Schedule for implementing these corrective steps.
- 6. Safety Plan:
  - a. Description of precautions, of necessary equipment, etc., for site personnel;
  - b. Safety tasks required in the event of systems failure.
- 7. Description of equipment:
  - a. Equipment identification;
  - b. Installation of monitoring components;
  - c. Maintenance of site equipment;
  - d. Replacement schedule for equipment and installed components.
- 8. Records and reporting mechanisms required:
  - a. Daily operating logs;
  - b. Laboratory records;
  - c. Records for operating costs;
  - d. Mechanism for reporting emergencies;
  - e. Personnel and maintenance records;
  - f. Monthly/annual reports to State agencies.

**V: Other Reports and Submissions**

The Respondent shall submit to U.S. EPA for review and approval a comprehensive draft project completion report referred to as a *Draft Corrective Measures Implementation Report* within 90 days of completion of all Work - 2/1/2024. The report shall document that the project is consistent with the design specifications and the Order, and that the corrective measures are performing adequately. The Report shall include, but not be limited to the following elements:

- a. Synopsis of the corrective measures and certification of the design and construction;
- b. Explanation of any modifications to the plans and why these were necessary for the project;
- c. Listing of the criteria, established before the remedial action was initiated, for judging the functioning of the remedial action and also providing explanation of any modification to these criteria;
- d. Results of facility monitoring, indicating that the remedial action will meet or exceed the performance criteria;
- e. Explanation of the operation and maintenance (including monitoring) to be undertaken at the facility;
- f. Data demonstrating that the Cleanup Standards have been achieved.

The Respondents shall finalize the Corrective Measure Implementation Report incorporating comments received on the draft submission within 90



days of receipt of U.S. EPA's comments.

Additional Studies

The U.S. EPA may require additional studies to supplement the available technical data. The Respondents shall furnish all equipment and personnel necessary to complete any additional work needed. Final reports shall be prepared presenting all data obtained during the additional studies, summary of the results and conclusions.

